

ABSTRACT

A purpose of the invention is to provide a method for leveling a semiconductor layer without increasing the number and the complication of manufacturing processes as well as without deteriorating a crystal characteristic, and a method for leveling a surface of a semiconductor layer to stabilize an interface between the surface of the semiconductor layer and a gate insulating film, in order to achieve a TFT having a good characteristic.

In an atmosphere of one kind or a plural kinds of gas selected from hydrogen or inert gas (nitrogen, argon, helium, neon, krypton and xenon), radiation with a laser beam in the first, second and third conditions is carried out in order, wherein the first condition laser beam is radiated for crystallizing a semiconductor film or improving a crystal characteristic; the second condition laser beam is radiated for eliminating an oxide film; and the third condition laser beam is radiated for leveling a surface of the crystallized semiconductor film.